Chapter 9

- Binomial data $X \sim \text{binomial}(n, p)$. Confidence interval for p

$$\left[\frac{X}{n} - z_{\alpha/2}\sqrt{\frac{X(n-X)}{n^3}}, \frac{X}{n} + z_{\alpha/2}\sqrt{\frac{X(n-X)}{n^3}}\right].$$

- Binomial data, two variables $X \sim \text{binomial}(n, p_X)$, $Y \sim \text{binomial}(m, p_Y)$, X and Y are independent. Confidence interval for $p_X - p_Y$

$$\left[\frac{X}{n} - \frac{Y}{m} - z_{\alpha/2}\sqrt{\frac{X(n-X)}{n^3} + \frac{Y(m-Y)}{m^3}},\right.$$

$$\left.\frac{X}{n} - \frac{Y}{m} + z_{\alpha/2}\sqrt{\frac{X(n-X)}{n^3} + \frac{Y(m-Y)}{m^3}}\right].$$

- $X_1, ..., X_n$ are normally distributed. $(1-\alpha)$ confidence interval for σ^2

$$\left[\frac{(n-1)S^2}{\chi^2_{\alpha/2}}, \frac{(n-1)S^2}{\chi^2_{1-\alpha/2}}\right].$$